CLAIMS

1. A film derived from a poly(carboxylic acid) polymer (A) and a polyvalent metal compound (B) serving as raw materials, wherein the peak ratio (A_{1560}/A_{1700}) in an infrared absorption spectrum of the film is at least 0.25.

2. The film according to claim 1, which has at least one layer structure unit including a layer (a) formed of the poly(carboxylic acid) polymer (A) and a layer (b) formed of the polyvalent metal compound (B), with the layers (a) and (b) being adjacent to each other.

3. The film according to claim 2, which has at least one layer structure unit in which the layers (a) and (b) are adjacently arranged in the following order: layer (b)/layer (a)/layer (b) or layer (a)/layer (b)/layer (a).

4. The film according to claim 2 or 3, wherein the total amount (Bt) of the polyvalent metal compound (B) is at least 0.2 eq on the basis of the total amount (At) of carboxyl groups contained in all the layers (a) and (b) which are adjacent to each other.

5. The film according to claim 1, which is formed from a mixture containing the poly(carboxylic acid) polymer (A) and the polyvalent metal compound (B).

6. The film according to claim 5, wherein the amount of the polyvalent metal compound (B) is at least 0.2 eq on the basis of the amount of all the carboxyl groups contained in the poly(carboxylic acid) polymer (A).

7. The film according to any of claims 1 through 6,

wherein a film formed solely from the poly(carboxylic acid) polymer (A) exhibits an oxygen permeation coefficient of 1,000 $cm^3(STP)\cdot\mu m/(m^2\cdot day\cdot MPa)$ or less as measured at 30°C and a relative humidity of 0%.

8. The film according to any of claims 1 through 7, wherein the poly(carboxylic acid) polymer (A) is a homopolymer, a copolymer, and/or a mixture thereof, which contains at least one polymerizable monomer selected from among acrylic acid, maleic acid, and methacrylic acid.

9. The film according to any of claims 1 through 8, wherein the polyvalent metal compound (B) is a divalent metal compound.

10. The film according to any of claims 1 through 9, which is easily dissolved in an acid and/or an alkali.

11. The film according to any of claims 1 through 10, which has a thickness of 0.001 μm to 1 mm.

12. The film according to any of claims 1 through 11, which is employed for a gas-barrier material.

13. The film according to any of claims 1 through 12, which exhibits an oxygen permeation coefficient of 1,000 $cm^3(STP)\cdot\mu m/(m^2\cdot day\cdot MPa)$ or less as measured at 30°C and a relative humidity of 80%.

14. A laminate comprising a film as recited in any of claims 1 through 13 and a substrate, with the film being provided on at least one surface of the substrate.

15. A laminate according to claim 14, which is employed for a gas-barrier material.

16. The laminate according to claim 14 or 15, which exhibits an oxygen permeation coefficient of 1,000 $cm^3(STP)\cdot\mu m/(m^2\cdot day\cdot MPa)$ or less as measured at 30°C and a relative humidity of 80%.

17. A film (P) derived from a poly(carboxylic acid) polymer (A) and a polyvalent metal compound (B) serving as raw materials, wherein the peak ratio (A_{1560}/A_{1700}) in an infrared absorption spectrum of the film is less than 0.25.

18. The film (P-1) according to claim 17, which has at least one layer structure unit including a layer (a) formed of the poly(carboxylic acid) polymer (A) and a layer (b) formed of the polyvalent metal compound (B), with the layers (a) and (b) being adjacent to each other.

19. The film (P-1a) according to claim 18, which has at least one layer structure unit in which the layers (a) and (b) are adjacently arranged in the following order: layer (b)/layer (a)/layer (b) or layer (a)/layer (b)/layer (a).

20. The film (P-1-1) according to claim 18, wherein the total amount (Bt) of the polyvalent metal compound (B) is at least 0.2 eq on the basis of the total amount (At) of carboxyl groups contained in all the layers (a) and (b) which are adjacent to each other.

21. The film (P-1a-1) according to claim 19, wherein the total amount (Bt) of the polyvalent metal compound (B) is at least 0.2 eq on the basis of the total amount (At) of carboxyl groups contained in all the layers (a) and (b) which are adjacent to each other.

22. The film (P-2) according to claim 17, which is formed from a mixture containing the poly(carboxylic acid) polymer (A) and the polyvalent metal compound (B).

23. The film (P-2-1) according to claim 22, wherein the amount of the polyvalent metal compound (B) is at least 0.2 eq on the basis of the amount of all the carboxyl groups contained in the poly(carboxylic acid) polymer (A).

24. A laminate comprising a film (P) as recited in claim 17, and a substrate, with the film (P) being provided on at least one surface of the substrate.

25. A method for producing a film (P) as recited in claim 17, which method comprises forming, on a support, a coating film by means of a coating method from a solution or dispersion containing the poly(carboxylic acid) polymer (A) and a solvent, and a solution or dispersion containing the polyvalent metal compound (B) and a solvent.

26. A method for producing a film (P-1) as recited in claim 18, which method comprises forming, on a support, the layer (a) and the layer (b) by means of a coating method from a solution or dispersion containing the poly(carboxylic acid) polymer (A) and a solvent, and a solution or dispersion containing the polyvalent metal compound (B) and a solvent.

27. A method for producing a film (P-1a) as recited in claim 19, which method comprises forming, on a support, the layer (a) and the layer (b) so as to be arranged in the following order: layer (b)/layer (a)/layer (b) or layer (a)/layer (b)/layer (a) by means of a coating method from a

solution or dispersion containing the poly(carboxylic acid) polymer (A) and a solvent, and a solution or dispersion containing the polyvalent metal compound (B) and a solvent.

28. A method for producing a film (P-2) as recited in claim 22, which method comprises forming, on a support, a coating film by means of a coating method from a solution or dispersion of a mixture containing the poly(carboxylic acid) polymer (A), the polyvalent metal compound (B), a volatile base (C), and a solvent.

29. A method for producing a film (P-2) according to claim 28, wherein the amounts of the polyvalent metal compound (B) and the volatile base (C) are at least 0.2 eq and at least 1.0 eq, respectively, on the basis of the amount of all the carboxyl groups contained in the poly(carboxylic acid) polymer (A), to thereby produce a film (P-2-1) as recited in claim 23.

30. A method for producing a film as recited in claim 1, which method comprises allowing a film (P) as recited in claim 17 to stand in an atmosphere having a relative humidity of at least 20%, to thereby increase the peak ratio (A_{1560}/A_{1700}) in an infrared absorption spectrum of the film to 0.25 or more.

31. A method for producing a film as recited in claim 2, which method comprises allowing a film (P-1) as recited in claim 18 to stand in an atmosphere having a relative humidity of at least 20%, to thereby increase the peak ratio (A_{1560}/A_{1700}) in an infrared absorption spectrum of the film to

0.25 or more.

32. A method for producing a film as recited in claim 3, which method comprises allowing a film (P-1a) as recited in claim 19 to stand in an atmosphere having a relative humidity of at least 20%, to thereby increase the peak ratio (A_{1560}/A_{1700}) in an infrared absorption spectrum of the film to 0.25 or more.

33. A method for producing a film as recited in claim 5, which method comprises allowing a film (P-2) as recited in claim 22 to stand in an atmosphere having a relative humidity of at least 20%, to thereby increase the peak ratio (A_{1560}/A_{1700}) in an infrared absorption spectrum of the film to 0.25 or more.

34. A method for producing a laminate as recited in claim 14, which method comprises allowing a laminate as recited in claim 24 to stand in an atmosphere having a relative humidity of at least 20%, to thereby increase the peak ratio (A_{1560}/A_{1700}) in an infrared absorption spectrum of the laminate to 0.25 or more.

35. A method for producing a film as recited in claim 2, which method comprises forming, on a support, a film by means of a coating method from a solution or dispersion containing the poly(carboxylic acid) polymer (A) and a solvent, and a solution or dispersion containing the polyvalent metal compound (B) and a solvent, the film having at least one layer structure unit including the layer (a) formed of the poly(carboxylic acid) polymer (A) and the layer (b) formed of

the polyvalent metal compound (B), with the layers (a) and (b) being adjacent to each other; and allowing the thus-formed film to stand in an atmosphere having a relative humidity of at least 20%.

36. A method for producing a film as recited in claim 5, which method comprises forming, on a support, a coating film by means of a coating method from a solution or dispersion of a mixture containing the poly(carboxylic acid) polymer (A), the polyvalent metal compound (B), the volatile base (C), and a solvent; and allowing the thus-formed coating film to stand in an atmosphere having a relative humidity of at least 20%.

37. A bag, a sheet, or a container, which comprises a film as recited in any of claims 17 through 23.

38. A packaging material for thermal sterilization, which comprises a film as recited in any of claims 17 through 23.

39. A bag, a sheet, or a container, which comprises a laminate as recited in claim 24.

40. A packaging material for thermal sterilization, which comprises a laminate as recited in claim 24.

41. A bag, a sheet, or a container, which comprises a film as recited in any of claims 1 through 13.

42. A packaging material for thermal sterilization, which comprises a film as recited in any of claims 1 through 13.

43. A bag, a sheet, or a container, which comprises a laminate as recited in any of claims 14 through 16.

44. A packaging material for thermal sterilization, which comprises a laminate as recited in any of claims 14 through 16.